CLAIMS

1. A target material that is represented by the composition formula in atomic percent of $(Fe_X - Co_{100-X})_{100-Y}$-$M_Y$, wherein M represents at least one element selected from Ta or Nb and X and Y respectively satisfy the conditions of $0 \leq X \leq 80$ and $10 \leq Y \leq 30$, that comprises a balance of unavoidable impurities, and that has a flexural strain at break at 300°C of 0.33% or more,

the target material comprising a metallurgical structure, wherein the metallurgical structure is observed in a cross section surface of the target material and has a maximum inscribed circle having a diameter of 4 μm or more but 20 μm or less, when the circle is drawn within a region of an intermetallic compound phase that contains at least one element selected from Ta or Nb.

2. A method of producing a target material, the method comprising:

pressure-sintering a powder composition under conditions of a sintering temperature of from 1250°C to 1400°C, a pressure of from 100 MPa to 200 MPa and a sintering time of from 1 to 10 hours,

the powder composition being represented by the composition formula in atomic percent of $(Fe_X - Co_{100-X})_{100-Y}$-$M_Y$, wherein M represents at least one element selected from Ta or Nb and X and Y respectively satisfy the conditions of $0 \leq X \leq 80$ and $10 \leq Y \leq 30$, and

the powder composition comprising a balance of unavoidable impurities and an alloy powder having a metallurgical structure observed in a cross section surface of the powder, the metallurgical structure having a maximum inscribed circle having a diameter of 10 μm or less, when the circle is drawn within a region of an intermetallic compound phase that contains at least one element selected from Ta or Nb.

3. The method of producing a target material according to claim 2, wherein the powder composition comprises a single-composition alloy powder adjusted such that the powder has a final composition.

CLAIMS

1. A target material that is represented by the composition formula in atomic percent of $(Fe_X - Co_{100-X})_{100-Y}$-$M_Y$, wherein M represents at least one element selected from Ta or Nb and X and Y respectively satisfy the conditions of $0 \leq X \leq 80$ and $10 \leq Y \leq 30$, that comprises a balance of unavoidable impurities, and that has a flexural strain at break at 300°C of 0.33% or more.

2. The target material according to claim 1, comprising a metallurgical structure, wherein the metallurgical structure is observed in a cross section surface of the target material and has a maximum inscribed circle having a diameter of 20 μm or less, when the circle is drawn within a region of an intermetallic compound phase that contains at least one element selected from Ta or Nb.

3. A method of producing a target material, the method comprising:

pressure-sintering a powder composition under conditions of a sintering temperature of from 900°C to 1400°C, a pressure of from 100 MPa to 200 MPa and a sintering time of from 1 to 10 hours,

the powder composition being represented by the composition formula in atomic percent of $(Fe_X - Co_{100-X})_{100-Y}$-$M_Y$, wherein M represents at least one element selected from Ta or Nb and X and Y respectively satisfy the conditions of $0 \leq X \leq 80$ and $10 \leq Y \leq 30$, and

the powder composition comprising a balance of unavoidable impurities and an alloy powder having a metallurgical structure observed in a cross section surface of the powder, the metallurgical structure having a maximum inscribed circle having a diameter of 10 μm or less, when the circle is drawn within a region of an intermetallic compound phase that contains at least one element selected from Ta or Nb.

4. The method of producing a target material according to claim 3, wherein the powder composition comprises a single-composition alloy powder adjusted such that the powder has a final composition.